

WE CLAIM:

1. A conference bridge comprising:

an input unit that operates to receive at least one media data packet from at least two sources forming a media conference, each media data packet defining a media signal;

a talker selection unit that operates to receive speech indication signals from at least one of the sources within the media conference and to process the speech indication signals including selecting a set of the sources within the media conference as talkers; and

an output unit, coupled to the input unit, that operates to output the media signals that correspond to the set of sources within the media conference selected as talkers.

2. A conference bridge according to claim 1, wherein each of the speech indication signals comprises one of a talking indication and a listening indication corresponding to the respective source within the media conference.

3. A conference bridge according to claim 2, wherein to select a set of the sources within the media conference as talkers, the talker selection unit operates to:

monitor the speech indication signals for talking indications; and

select sources within the media conference as talkers based upon the order in which any talking indications are received at the talker selection unit from the sources within the media conference.

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4. A conference bridge according to claim 1, wherein each of the speech indication signals comprises at least one speech parameter corresponding to the respective source within the media conference.

5 5. A conference bridge according to claim 4, wherein
to select a set of the sources within the media conference as
talkers, the talker selection unit operates to:

10 determine which sources within the media conference
are sending media signals containing speech with the use of
the speech parameters within the speech indication signals;
and

select sources within the media conference as talkers based upon the order in which sources within the media conference are determined to send media signals containing speech.

6. A conference bridge according to claim 4, wherein the speech parameter within each of the speech indication signals is an energy level corresponding to media signals sent from the respective source within the media conference.

20 7. A conference bridge according to claim 6, wherein
to select a set of the sources within the media conference as
talkers, the talker selection unit operates to:

determine which sources within the media conference are sending media signals containing speech with the use of the energy levels within the speech indication signals; and

select sources within the media conference as talkers based upon the comparative energy levels of the sources within the media conference determined to be sending media signals containing speech.

8. A conference bridge according to claim 4, wherein the speech parameter within each of the speech indication signals is a pitch value corresponding to media signals sent from the respective source within the media conference.
- 5 9. A conference bridge according to claim 4, wherein the speech parameter within each of the speech indication signals is a number of bytes within media signals sent from the respective source within the media conference.
- 10 10. A conference bridge according to claim 1, wherein the set of the sources within the media conference selected as talkers comprises a plurality of sources within the media conference; and
- 15 wherein the conference bridge further comprises a mixing block, coupled between the input and output units, that operates to receive media signals corresponding to sources within the media conference selected as talkers from the input unit, mix these received media signals and output the mixed result to the output block.
- 20 11. A conference bridge according to claim 1, wherein the set of the sources within the media conference selected as talkers comprises a lone source within the media conference.
- 25 12. A conference bridge according to claim 1, wherein the media data packets are audio data packets and the media signals defined by the media data packets are audio signals.
13. A conference bridge according to claim 1, wherein the media data packets are audio/video data packets and the media signals defined by the media data packets are audio/video signals.

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14. A conference bridge comprising:

means for receiving at least one media data packet from at least two sources forming a media conference, each media data packet defining a media signal;

5 means for receiving speech indication signals from
at least one of the sources within the media conference;

means for processing the speech indication signals including selecting a set of the sources within the media conference as talkers; and

10 means for outputting the media signals that correspond to the set of sources within the media conference selected as talkers.

15. A conference bridge comprising:

an input unit that operates to receive at least one
15 media data packet from at least two sources forming a media
conference, each media data packet defining a media signal;

an energy detection and talker selection unit, coupled to the input unit, that operates to:

20 determine at least one speech parameter
 corresponding to each of the media signals; and

select a set of the sources within the media conference as talkers based on the determined speech parameters; and

an output unit, coupled to the input unit, that
operates to output addressing control signals to the sources
within the media conference selected as talkers, the
addressing control signals comprising instructions for the

sources within the media conference selected as talkers to output their media signals directly to other sources within the media conference.

16. A conference bridge according to claim 15, wherein
5 the addressing control signals comprise packet-based network
addresses corresponding to the other sources within the media
conference.

17. A conference bridge according to claim 15, wherein the media data packets are audio data packets and the media signals defined by the media data packets are compressed audio signals; and

wherein the speech parameter corresponding to each of the media signals is a number of bytes within each of the compressed audio signals.

15 18. A conference bridge according to claim 15, wherein
the speech parameter corresponding to each of the media
signals is a pitch value corresponding to each of the media
signals.

19. A conference bridge according to claim 15, wherein
20 the speech parameter corresponding to each of the media
signals is an energy level corresponding to each of the media
signals.

20. A conference bridge according to claim 15, wherein
the media data packets are audio data packets and the media
25 signals defined by the media data packets are audio signals.

21. A conference bridge according to claim 15, wherein the media data packets are audio/video data packets and the media signals defined by the media data packets are audio/video signals.

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22. A conference bridge comprising:

means for receiving at least one media data packet from at least two sources forming a media conference, each media data packet defining a media signal;

5 means for selecting a set of the sources within the
media conference as talkers; and

means for instructing the sources within the media conference selected as talkers to output their media signals directly to other sources within the media conference.

10 23. A conference bridge arranged to be coupled to a packet-based network that includes at least two sources of media signals forming a media conference, the conference bridge comprising:

15 a talker selection unit that operates to receive speech indication signals from at least one of the sources within the media conference and to process the speech indication signals including selecting a set of the sources within the media conference as talkers; and

an output unit, coupled to the talker selection unit, that operates to output addressing control signals to the sources within the media conference selected as talkers, the addressing control signals comprising instructions for the sources within the media conference selected as talkers to output their media signals directly to other sources within the media conference.

24. A conference bridge according to claim 23, wherein each of the speech indication signals comprises one of a talking indication and a listening indication corresponding to the respective source within the media conference.

25. A conference bridge according to claim 24, wherein to select a set of the sources within the media conference as talkers, the talker selection unit operates to:

monitor the speech indication signals for talking
5 indications; and

select sources within the media conference as talkers based upon the order in which any talking indications are received at the talker selection unit from the sources within the media conference.

10 26. A conference bridge according to claim 23, wherein each of the speech indication signals comprises at least one speech parameter corresponding to the respective source within the media conference.

27. A conference bridge according to claim 26, wherein
15 to select a set of the sources within the media conference as
talkers, the talker selection unit operates to:

determine which sources within the media conference are sending media signals containing speech with the use of the speech parameters within the speech indication signals; and

select sources within the media conference as talkers based upon the order in which sources within the media conference are determined to send media signals containing speech.

25 28. A conference bridge according to claim 26, wherein the speech parameter within each of the speech indication signals is an energy level corresponding to media signals sent from the respective source within the media conference.

29. A conference bridge according to claim 28, wherein to select a set of the sources within the media conference as talkers, the talker selection unit operates to:

determine which sources within the media conference
5 are sending media signals containing speech with the use of
the energy levels within the speech indication signals; and

select sources within the media conference as talkers based upon the comparative energy levels of the sources within the media conference determined to be sending media signals containing speech.

30. A conference bridge according to claim 26, wherein the speech parameter within each of the speech indication signals is a pitch value corresponding to media signals sent from the respective source within the media conference.

15 31. A conference bridge according to claim 26, wherein the speech parameter within each of the speech indication signals is a number of bytes within media signals sent from the respective source within the media conference.

32. A conference bridge according to claim 23, wherein
20 the set of the sources within the media conference selected
as talkers comprises a plurality of sources within the media
conference; and

wherein the conference bridge further comprises a mixing block, coupled between the input and output units, that operates to receive media signals corresponding to sources within the media conference selected as talkers from the input unit, mix these received media signals and output the mixed result to the output block.

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33. A conference bridge according to claim 23, wherein the set of the sources within the media conference selected as talkers comprises a lone source within the media conference.

5 34. A conference bridge according to claim 23, wherein the addressing control signals comprise packet-based network addresses corresponding to the other sources within the media conference.

35. A conference bridge according to claim 23, wherein
10 the media data packets are audio data packets and the media
signals defined by the media data packets are audio signals.

36. A conference bridge according to claim 23, wherein the media data packets are audio/video data packets and the media signals defined by the media data packets are audio/video signals.

37. A conference bridge arranged to be coupled to a packet-based network that includes at least two sources of media signals forming a media conference, the conference bridge comprising:

means for receiving speech indication signals from at least one of the sources within the media conference;

means for processing the speech indication signals including selecting a set of the sources within the media conference as talkers; and

25 means for instructing the sources within the media conference selected as talkers to output their media signals directly to other sources within the media conference.

38. A packet-based apparatus arranged to be coupled to a conference bridge via a packet-based network, the packet-based apparatus comprising:

an output unit that operates to receive at least
5 one media signal from at least one participant within a media
conference and output the received media signal to the
conference bridge via the packet-based network; and

10 a speech detection unit, coupled to the output unit, that operates to process the received media signal, generate a speech indication signal based upon the received media signal and output the speech indication signal to the conference bridge.

39. A packet-based apparatus according to claim 38,
wherein the output unit comprises a microphone that operates
15 to receive audio signals from the at least one participant
within the media conference, the received media signal
comprising audio signals received from the microphone.

40. A packet-based network interface arranged to be coupled between a packet-based network and a non-packet-based network, the network interface comprising a packet-based apparatus according to claim 38, wherein the output unit receives the media signal from the at least one participant within the media conference from a non-packet-based telephone terminal via the non-packet-based apparatus.

25 41. A packet-based apparatus according to claim 38,
wherein to generate a speech indication signal based upon the
received media signal, the speech detection unit operates to:

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        determine if the received media signal contains
speech;

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if the received media signal contains speech,
include a talking indication within the speech indication
signal; and

5 if the received media signal does not contain
speech, include a listening indication within the speech
indication signal.

42. A packet-based apparatus according to claim 41,
wherein to determine if the received media signal contains
speech, the speech detection unit operates to determine an
10 energy level for the received media signal and compare the
determined energy level with a speech indication energy
threshold.

43. A packet-based apparatus according to claim 41,
wherein to determine if the received media signal contains
15 speech, the speech detection unit operates to determine a
pitch value for the received media signal and compare the
determined pitch value with a speech indication pitch
threshold.

44. A packet-based apparatus according to claim 41,
20 wherein the output unit further operates to compress the
received media signal prior to outputting the media signal to
the conference bridge; and

wherein to determine if the received media signal
contains speech, the speech detection unit operates to
25 determine if the number of bytes of the compressed media
signal indicates that the received media signal contains
speech.

45. A packet-based apparatus according to claim 38,
wherein to generate a speech indication signal based upon the
30 received media signal, the speech detection unit operates to:

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determine a speech parameter corresponding to the received media signal; and

include the speech parameter within the speech indication signal.

5 46. A packet-based apparatus according to claim 45, wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines an energy level corresponding to the received media signal.

10 47. A packet-based apparatus according to claim 45, wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines a pitch value corresponding to the received media signal.

15 48. A packet-based apparatus according to claim 45, wherein the output unit further operates to compress the received media signal prior to outputting the compressed media signal to the conference bridge; and

20 wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines the number of bytes of the compressed media signal.

49. A packet-based apparatus arranged to be coupled to a conference bridge via a packet-based network, the packet-based apparatus comprising:

25 an addressing control unit that operates to receive at least one addressing control signal from the conference bridge; and

an output unit that operates to receive at least one media signal from at least one participant within a media

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conference and output the received media signal, via the packet-based network, to at least one other participant within the media conference based upon the addressing control signal.

5 50. A packet-based apparatus according to claim 49,
wherein the addressing control signal comprises a packet-
based network address corresponding to the at least one other
participant within the media conference.

51. A packet-based apparatus according to claim 49,
10 wherein the output unit comprises a microphone that operates
to receive audio signals from the at least one participant
within the media conference, the received media signal
comprising audio signals received from the microphone.

52. A packet-based network interface arranged to be
coupled between a packet-based network and a non-packet-based
network, the network interface comprising a packet-based
apparatus according to claim 49, wherein the output unit
receives the media signal from the at least one participant
within the media conference from a non-packet-based telephone
terminal via the non-packet-based apparatus.

53. A packet-based apparatus according to claim 49 further comprising a speech detection unit, coupled to the output unit, that operates to process the received media signal, generate a speech indication signal based upon the received media signal and output the speech indication signal to the conference bridge.

54. A packet-based apparatus according to claim 53, wherein to generate a speech indication signal based upon the received media signal, the speech detection unit operates to:

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        determine if the received media signal contains
speech;

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if the received media signal contains speech,
include a talking indication within the speech indication
5 signal; and

if the received media signal does not contain speech, include a listening indication within the speech indication signal.

55. A packet-based apparatus according to claim 54,
10 wherein to determine if the received media signal contains
speech, the speech detection unit operates to determine an
energy level for the received media signal and compare the
determined energy level with a speech indication energy
threshold.

15 56. A packet-based apparatus according to claim 54,
wherein to determine if the received media signal contains
speech, the speech detection unit operates to determine a
pitch value for the received media signal and compare the
determined pitch value with a speech indication pitch
20 threshold.

57. A packet-based apparatus according to claim 54, wherein the output unit further operates to compress the received media signal prior to outputting the media signal to the conference bridge; and

25 wherein to determine if the received media signal contains speech, the speech detection unit operates to determine if the number of bytes of the compressed media signal indicates that the received media signal contains speech.

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58. A packet-based apparatus according to claim 53, wherein to generate a speech indication signal based upon the received media signal, the speech detection unit operates to:

5 determine a speech parameter corresponding to the received media signal; and

include the speech parameter within the speech indication signal.

59. A packet-based apparatus according to claim 58, wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines an energy level corresponding to the received media signal.

60. A packet-based apparatus according to claim 58, wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines a pitch value corresponding to the received media signal.

61. A packet-based apparatus according to claim 58, wherein the output unit further operates to compress the received media signal prior to outputting the compressed media signal to the conference bridge; and

20 wherein to determine a speech parameter corresponding to the received media signal, the speech detection unit determines the number of bytes of the compressed media signal.

62. A method for controlling a media conference, the method comprising:

receiving at least one media signal from at least two sources forming a media conference;

selecting a set of the sources within the media conference as talkers based on the received speech indication signals; and

63. A method for a packet-based apparatus to operate within a media conference controlled by a conference bridge, the method comprising:

processing the received media signal in order to generate a speech indication signal based upon the received media signal; and

64. A method for controlling a media conference including at least two sources of media signals, the method comprising:

instructing the sources within the media conference selected as talkers to output their media signals directly to other sources within the media conference.

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65. A method according to claim 64, wherein the selecting a set of the sources of media signals within the media conference as talkers comprises:

receiving media signals from the sources within the
5 media conference;

determining at least one speech parameter corresponding to each of the received media signals; and

selecting a set of the sources within the media
conference as talkers based on the determined speech
10 parameters.

66. A method according to claim 64, wherein the selecting a set of the sources of media signals within the media conference as talkers comprises:

receiving speech indication signals from at least
15 one of the sources within the media conference; and

selecting a set of the sources within the media conference as talkers based on the received speech indication signals.

67. A method for a packet-based apparatus to operate
20 within a media conference controlled by a conference bridge,
the method comprising:

receiving at least one media signal from at least one participant within the media conference;

receiving at least one addressing control signal
25 from the conference bridge; and

outputting the received media signal to at least one other participant within the media conference based upon the addressing control signal.

68. A method according to claim 67 further comprising:

5 processing the received media signal in order to
generate a speech indication signal based upon the received
media signal; and

outputting the speech indication signal to the conference bridge.

10 69. A network incorporating a conference bridge
according to claim 1 and further comprising a plurality of
sources of media signals within the media conference;

wherein each of the sources within the media conference operates to output the at least one media signal to the conference bridge along with a speech indication signal corresponding to the at least one media signal.

70. A network incorporating a conference bridge according to claim 15 and further comprising a plurality of sources of media signals within the media conference;

20 wherein each of the sources within the media
conference operates to output the at least one media signal
to the conference bridge, receive the addressing control
signal from the conference bridge and output their media
signals to the other sources within the media conference
25 based upon the received addressing control signal.

71. A network incorporating a conference bridge according to claim 23 and further comprising a plurality of sources of media signals within the media conference;

